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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/661,116 | 09/12/2003 | Martin A. Putnam | CV-0044 | 6433 |

7590

05/10/2005

Gerald L. DePardo
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EXAMINER

LAVARIAS, ARNEL C

ART UNIT PAPER NUMBER

2872

DATE MAILED: 05/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

✓/EF

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/661,116 | PUTNAM ET AL. | |
| | Examiner | Art Unit | |
| | Arnel C. Lavarias | 2872 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 February 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 20-22 is/are allowed.
- 6) ☒ Claim(s) 1-9 and 13-19 is/are rejected.
- 7) ☒ Claim(s) 10-12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 February 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>2/16/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. In view of the amendments made in the submission dated 2/16/05, the Applicants' claim for domestic priority under 35 U.S.C. 120) is acknowledged and accepted.

Drawings

2. The drawings were received on 2/16/05. These drawings are objected to for the following reason(s) as set forth below.
3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:

Figure 27- Reference numeral 203 (See Page 19, lines 12 and 14).

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Response to Amendment

4. The amendments to the specification and abstract of the disclosure in the submission dated 2/16/05 are acknowledged and accepted. In view of these amendments, the objections to the specification and abstract in Sections 11-12 of the Office Action dated 10/12/04 are respectfully withdrawn.
5. The amendments to Claims 1, 8-10, and 12 in the submission dated 2/16/05 are acknowledged and accepted. In view of these amendments, the objections to the claims in Section 13 of the Office Action dated 10/12/04 are respectfully withdrawn.
6. The addition of Claims 16-22 in the submission dated 2/16/05 is acknowledged and accepted.

Response to Arguments

7. The Applicants' arguments, see in particular Pages 23-25 of Applicants' remarks, filed 2/16/05, with respect to the rejection of Claim 1 have been fully considered and are persuasive. The rejections of Claims 1-9, 13-15 in Sections 15-20 of the Office Action dated 10/12/04 have been withdrawn.
8. Claims 1-9, 13-19 are now rejected as follows.

Claim Objections

9. Claim 19 is objected to because of the following informalities:

Claim 19 recites the limitation "each wrap of fiber" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1-7, 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terao '029 (JP11-119029A) in view of Atkins et al. (U.S. Patent No. 5745615), of record.

Terao '029 discloses a method for manufacturing an optical identification element (See for example Figures 1, 3-4), the method comprising providing a substrate (See 11 in Figure 4); winding at least two or more wraps of the substrate around a device to form at least one grating writing section (See 13 in Figures 1, 4); and writing in a single exposure at least one grating into the at least two or more wraps of the substrate disposed in the at least one grating writing section (See 11, 19 in Figure 4). Terao '029 additionally discloses the substrate being a fiber having a core and a cladding (It is noted that the fiber is disclosed as being Corning SMF-28 optical fiber); the substrate being photosensitive (See Paragraph 0041); stripping a buffer from the fiber (See Paragraph 0042); the device maintaining the grating writing section flat (See 11 in Figure 1, where the optical fiber 11 is resting with its surface against the device 13); the device providing a plurality of flat grating writing sections of wound substrate (See 11 in Figures 1, 4); gratings being

written into a plurality of grating writing sections of wound substrate (See 11, 19 in Figure 4); the method including the step of rotating the device after writing each of the at least one grating section (See Figure 4); the step of writing includes writing in the single exposure a grating in an entire grating writing section (See for example 11, 19 in Figure 4); and the step of writing includes writing in the single exposure a grating in a part of the at least one grating writing section (See for example Figures 4, 9). Terao '029 lacks splitting the substrate disposed in the at least one grating writing section to form a multiplicity of optical identification elements. However, such method step of splitting (i.e. cleaving or breaking) the optical fiber to create multiple Bragg grating elements is routine and well known in the art. For example, Atkins et al. similarly teaches a method for manufacturing an optical identification element (See for example Figure 4), the method comprising providing a substrate (See 55 in Figure 4); winding the substrate around a device to provide at least one grating writing section (See 56, 57 in Figure 4); writing at least one grating into the substrate disposed in grating writing section (See col. 5, lines 3-18); and splitting the substrate disposed in the grating writing section to form a plurality of optical identification elements (See col. 5, lines 3-18). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the method of Terao '029 further include the step of splitting the substrate disposed in the at least one grating writing section to form a multiplicity of optical identification elements, as taught by Atkins et al., to take advantage of the cost savings and increased speed of manufacturing such Bragg gratings.

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12. Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terao '029 in view of Atkins et al. as applied to Claim 1 above, and further in view of Wakami et al. (U.S. Patent No. 6067392), of record.

Terao '029 in view of Atkins et al. discloses the invention as set forth above in Claim 1, except for the method further including bonding the substrate in the at least one grating writing section together to a sheet material. However, Wakami et al. teaches an optical fiber Bragg grating and method for manufacturing such a fiber Bragg grating (See for example Abstract; Figure 2), wherein after forming the Bragg gratings in the fiber, the fibers are placed in a V-groove substrate, adhered, and a sheet of material is placed over the fibers (See for example Figures 7-8). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the method of Terao '029 in view of Atkins et al. further include bonding the substrate in the at least one grating writing section together to a sheet material, as taught by Wakami et al., to prevent movement of the fibers, as well as provide protection from damage.

13. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Terao '029 in view of Atkins et al.

Terao '029 in view of Atkins et al. discloses the invention as set forth above in Claim 1. Terao '029 additionally discloses the device being disk, circular, or cylindrical in shape (See 13 in Figure 1). Terao '029 in view of Atkins et al. lacks the device being polygonal shaped to provide a plurality of flat grating writing sections of wound substrate. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the device be polygonal in shape to provide a plurality of

flat grating writing sections of wound substrate, since it has been held that a mere change in shape of an element is generally recognized as being within the level of ordinary skill in the art when the change in shape is not significant to the function of the combination. Further, one would have been motivated to select the shape of a polygon, such as a square, rectangle, triangle, pentagon, etc., for the purpose of reducing the size and/or weight of the device. *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

14. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Terao '029 in view of Atkins et al. as applied to Claim 1 above, and further in view of Othonos et al. (A. Othonos, X. Lee, R. M. Measures, 'Superimposed multiple Bragg gratings', Electronics Letters, vol. 30, no. 23, Nov. 10, 1994, pp. 1972-1974.), of record.

Terao '029 in view of Atkins et al. discloses the invention as set forth above in Claim 1, except for the grating comprising a plurality of co-located gratings. However, writing multiple co-located or superimposed gratings in a photosensitive optical fiber is well known in the art. For example Othonos et al. teaches a conventional method for writing multiple, superimposed fiber Bragg gratings in a photosensitive optical fiber (See for example Introduction, Experiment section on Pages 1972-1973). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the grating in the method of Terao '029 in view of Atkins et al. comprise a plurality of co-located gratings, as taught by Othonos et al., for the purpose of cost and space savings by superimposing the gratings in the same location (e.g. less fiber is used), as well as take advantage of the additional multiplexing functionality provided by the superimposed grating structure.

15. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Terao '029 in view of Atkins et al.

Terao '029 in view of Atkins et al. discloses the invention as set forth above in Claim 1, except for the step of winding including winding the substrate so that each wrap of fiber is adjacent to and touches each adjacent wrap to form a single layer of fiber ribbon. However, one of ordinary skill would have known to adjust the lateral spacing between each fiber turn on the device of Terao '029 in view of Atkins et al., such that no spacing, or a variable spacing, between each fiber turn exists. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the step of winding include winding the substrate so that each wrap of fiber is adjacent to and touches each adjacent wrap to form a single layer of fiber ribbon, in the method of manufacturing of Terao '029 in view of Atkins et al., for the purpose reducing the size of the device required for holding the optical fiber, while allowing for more fiber to be exposed during a single exposure, increasing manufacturing throughput for manufacturing such devices.

Allowable Subject Matter

16. Claims 20-22 are allowed.
17. Claims 10-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
18. The following is a statement of reasons for the indication of allowable subject matter:

Claim 10 is allowable over the cited art of record for at least the reason that the cited art of record fails to teach or reasonably suggest a method of manufacturing an optical identification element, as generally set forth in Claims 1 and 9, and further including, in combination, the method step that wherein the step of splitting of the substrate in the grating writing section further includes cutting the substrate bonded to the sheet material without cutting through the sheet material. Claims 11-12 are dependent on Claim 10, and hence are allowable for at least the same reasons Claim 10 is allowable.

Claim 20 is allowable over the cited art of record for at least the reason that the cited art of record fails to teach or reasonably suggest a method of manufacturing an optical identification element, as generally set forth in Claim 20, the method including, in combination, the method step of splitting the substrate in the grating writing section to form a plurality of optical identification elements by cutting the substrate bonded to the sheet material without cutting through the sheet material. Claims 21-22 are dependent on Claim 20, and hence are allowable for at least the same reasons Claim 20 is allowable.

Conclusion

19. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnel C. Lavarias whose telephone number is 571-272-2315. The examiner can normally be reached on M-F 9:30 AM - 6 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Arnel C. Lavarias
5/5/05



THONG NGUYEN
PRIMARY EXAMINER
GROUP 2800

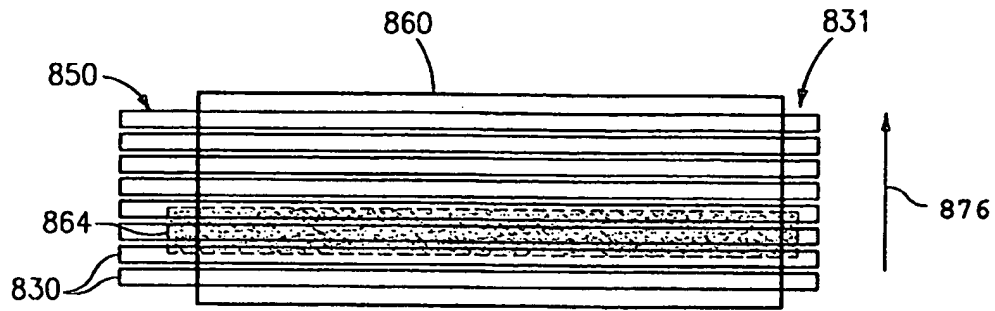


FIG. 10

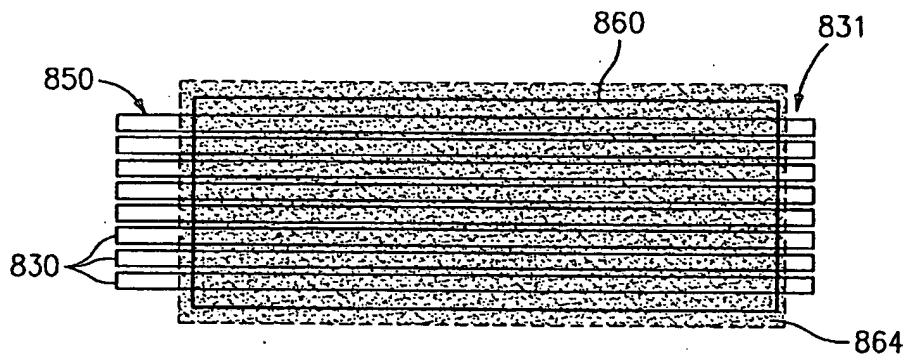


FIG. 11

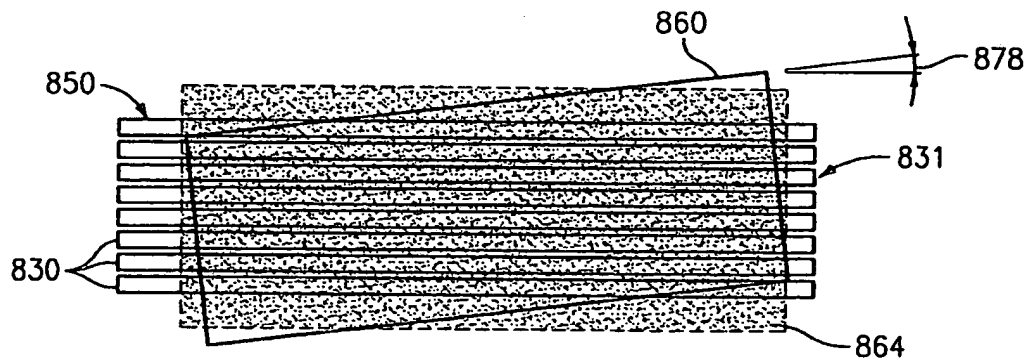


FIG. 12

Drawing Changes
Approved
JCC 5/5/05

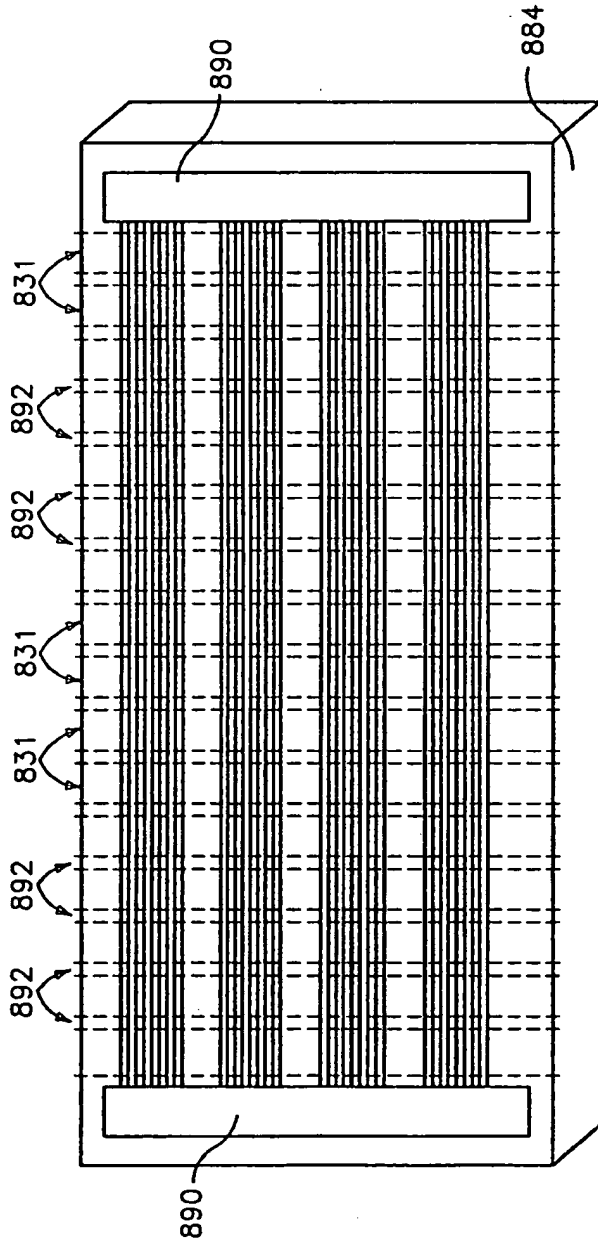


FIG. 13

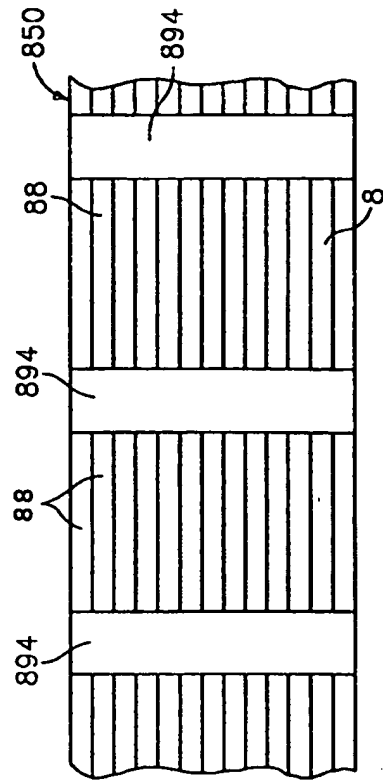


FIG. 15

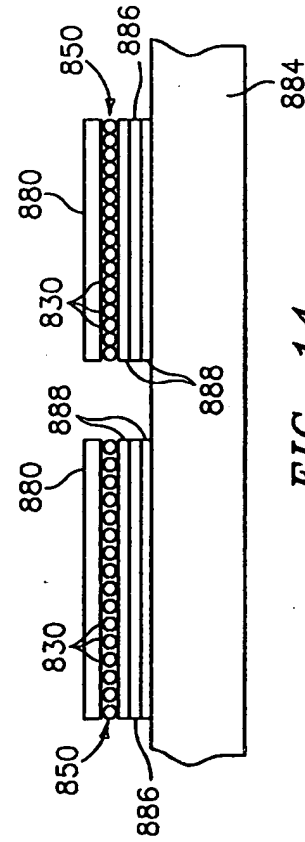


FIG. 14

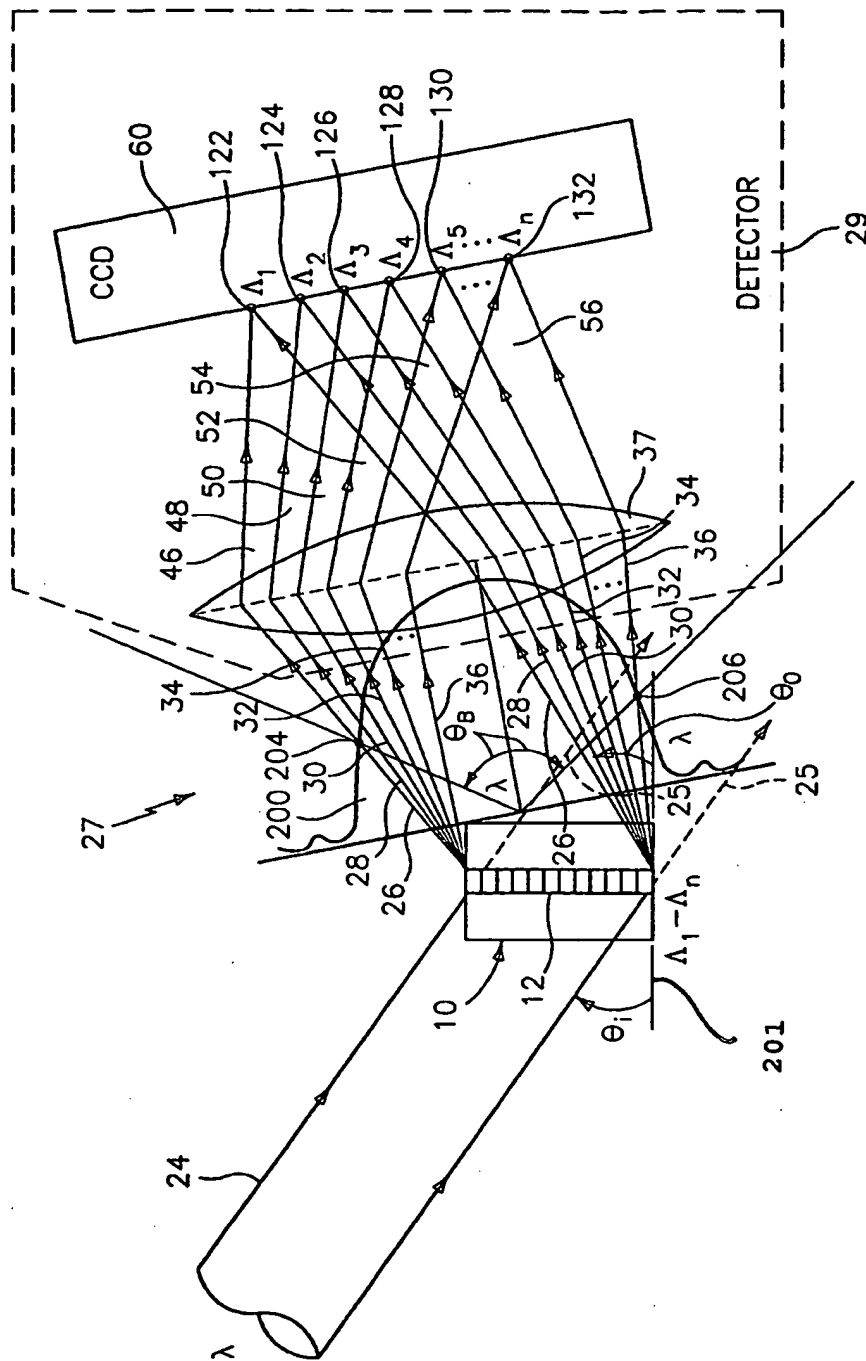
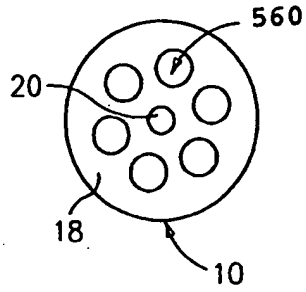
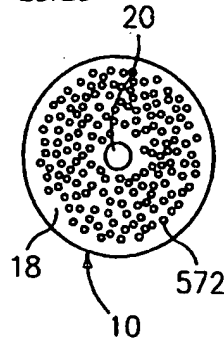


FIG. 27

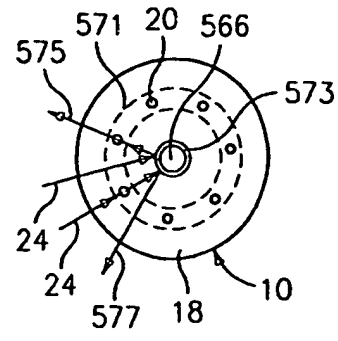
25/25



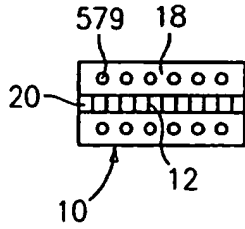
Illustration(a)



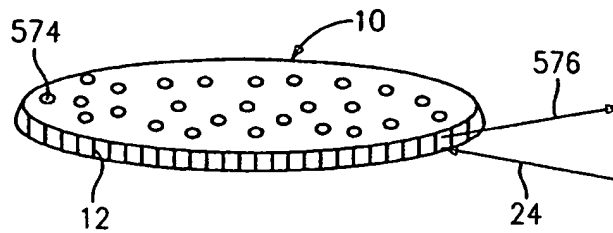
Illustration(b)



Illustration(c)

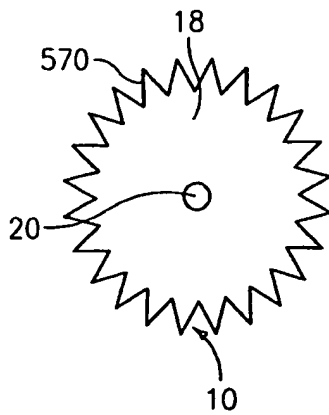


Illustration(d)

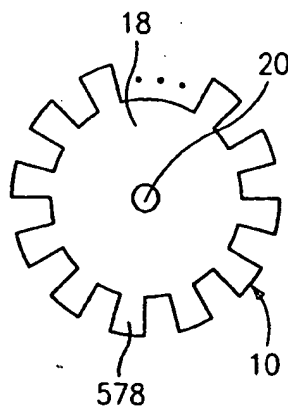


Illustration(e)

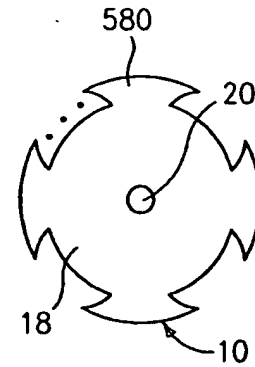
FIG. 50



Illustration(a)

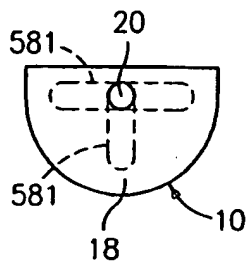


Illustration(b)

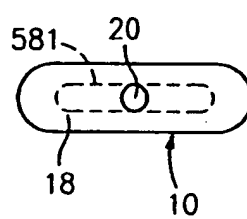


Illustration(c)

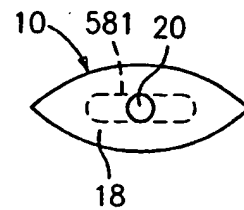
FIG. 51



Illustration(a)



Illustration(b)



Illustration(c)

FIG. 52